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10/594477

3rd August 2005

IAP01 Rec'd PCT/PTO 28 SEP 2006

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Dear Sirs

Re: PCT Patent Application No. PCT/GB2005/050043
(filed 24th March 2005)
corresponding to
UK Patent Application No. 04 07163.5
(filed 30th March 2004)
Applicant: Middlesex Silver Co. Limited
(Assigned from COLE, Paul Gilbert)
Inventors: JOHNS, Peter Gamon and HARRISON, Clare Elizabeth
"Water Based Metal Treatment Composition"
Case: MDX, 017-PCT

Amended claims in triplicate are filed herewith under Article 19 PCT and replace the claims as filed.

Claim 1 as filed is replaced by a new claim that incorporates the subject matter of claims 1, 3, 6, 20 and 21 as filed.

Claim 2 as filed is replaced by a new claim 2 additionally referring to octadecyl mercaptan.

Claims 3-6 are cancelled.

Claims 7-10 are renumbered as claim 3-6 but are otherwise unchanged.

Claim 11 is cancelled.

Claims 12-25 are renumbered as claims 7-19 but are otherwise unchanged.

contn:-

Claim 26 is cancelled

Claims 27-42 are renumbered as claims 20-35 but are otherwise unchanged.

Claims 43-47 are cancelled.

Would you please return the attached copy of this letter to acknowledge safe receipt hereof.

Best wishes.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Paul Cole', with a stylized flourish at the end.

Paul Cole/kep
Authorised Representative
Chartered Patent Agent
European Patent Attorney

Enc: Amended claims

CLAIMS

1. A water-based composition for treating a metal, comprising a treatment agent selected from an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide, and in concentrations effective to solubilize said treatment agent:

a non-ionic relatively hydrophobic surfactant which is a compound of the formula



- wherein R_1 represents C_{10} - C_{24} alkyl or alkenyl, m is 0 or 1 and n is 1 or 2, or which is ethoxylated fatty acid monoglyceride;

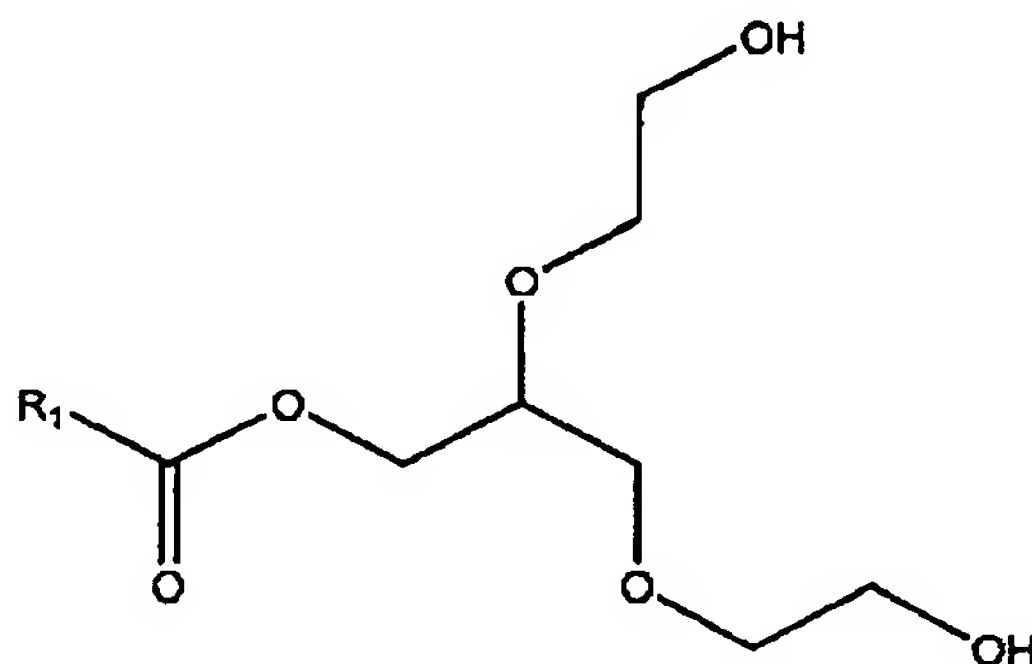
an anionic surfactant; and

a zwitterionic surfactant selected from betaine surfactants, imidazoline-based surfactants, aminoalkanoate surfactants and iminodialkanoate surfacts.

2. The composition of claim 1, wherein the treatment agent is hexadecyl or octadecyl mercaptan.

3. The composition of claim 1 or 2, wherein the non-ionic relatively hydrophobic surfactant comprises cocamide DEA.

4. The composition of claim 1, wherein the non-ionic relatively hydrophobic surfactant comprises an ethoxylated fatty acid monoglyceride of the formula:



wherein R_1 represents C_{10} - C_{24} alkyl or alkenyl.

5. The composition of claim 4, wherein the surfactant is a compound in which R1 represents C₁₂-C₁₈ alkyl or alkenyl.
- 5 6. The composition of claim 5, wherein the surfactant is glycereth-2-cocoate.
7. The composition of any preceding claim, comprising 0.5-10 wt % of the relatively hydrophobic surfactant.
- 10 8. The composition of any preceding claim, comprising 1-6 wt % of the relatively hydrophobic surfactant.
9. The composition of any preceding claim, comprising 2-5 wt % of the relatively hydrophobic surfactant.
- 15 10. The composition of any preceding claim, further comprising a polyol.
11. The composition of claim 10, comprising 0.5-10 wt % of the polyol.
- 20 12. The composition of claim 10, comprising 1-8 wt % of the polyol.
13. The composition of claim 10, comprising 1-5 wt % of the polyol.
14. The composition of any of claims 10-13, wherein the polyol is glycerol.
- 25 15. The composition of any preceding claim, wherein the anionic surfactant is of the formula RO-(CH₂CH₂)_nSO₃M wherein R represents C₁₀-C₁₈ alkyl, n is 2-6 and M represents a monovalent cation.
- 30 16. The composition of claim 15, wherein the anionic surfactant is a monovalent cation salt of laureth sulfate.

17. The composition of any preceding claim, wherein the amount of anionic surfactant (solids) is 0.1-15 wt%.
18. The composition of claim 17, wherein the amount of anionic surfactant (solids) is 0.3-10 wt%.
19. The composition of claim 17, wherein the amount of anionic surfactant (solids) is 0.5-1 wt%.
20. The composition of any preceding claim, wherein the zwitterionic surfactant is cocamidopropyl betaine.
21. The composition of any preceding claim, wherein the zwitterionic surfactant is present in an amount of 0.3-6 wt%
22. The composition of claim 21, wherein the zwitterionic surfactant is present in an amount of 0.6-3 wt%.
23. The composition of claim 21, wherein the zwitterionic surfactant is present in an amount of 0.9-1.5 wt%.
24. A composition according to any preceding claim comprising treatment agent in an amount of 0.1-5 wt%
25. A composition according to claim 24 comprising treatment agent in an amount of 0.5-2 wt%.
26. A composition according to claim 24, comprising treatment agent in an amount of about 1 wt%.
27. A composition according to any preceding claim, further comprising a salt of a strong base with a strong mineral acid.

28. The composition of claim 27, wherein the salt is sodium chloride or sodium sulfate.
- 5 29. The composition of claim 27 or 28, comprising 0.1-3 wt% of said salt.
30. The composition of claim 27 or 28, comprising 0.5-2 wt% of said salt.
31. The composition of claim 27 or 28, comprising about 1 wt% of said salt.
- 10 32. The composition of any preceding claim, which is a polishing dip and further comprises an acid and a thiourea.
33. The composition of any of claims 1-31, which is a cream or paste polish
- 15 further comprising a solid polishing medium.
34. The composition of claim 33, wherein the polishing medium is precipitated chalk, infusorial earth, silica or γ -alumina.
- 20 35. Use of the composition of any of claims 1-34 for the treatment of a silver-copper alloy, a silver-copper-germanium alloy, copper, brass or nickel.